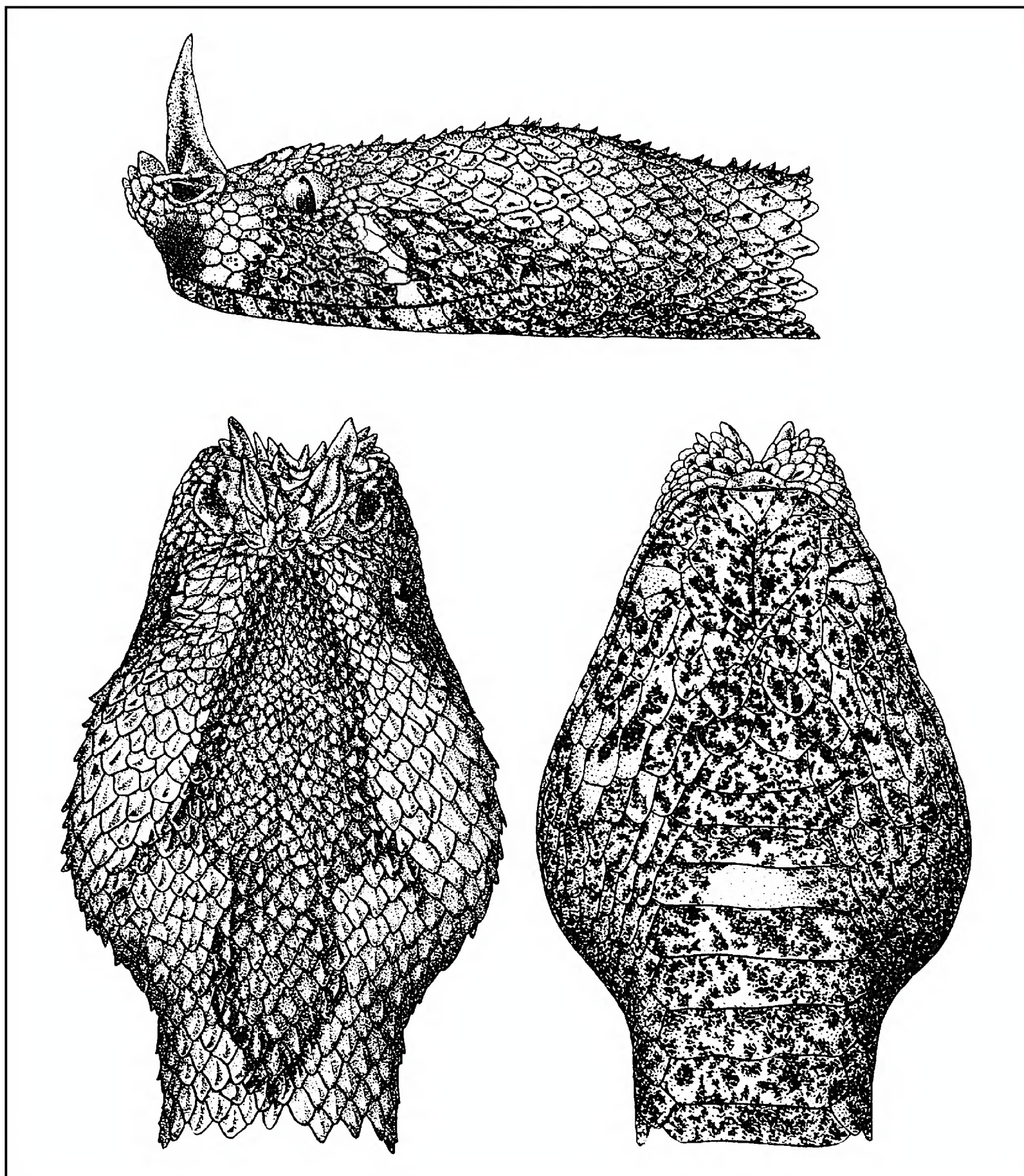

BULLETIN

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Chicago Herpetological Society



Volume 39, Number 3
March 2004



BULLETIN OF THE CHICAGO HERPETOLOGICAL SOCIETY
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Field Notes for *Varanus niloticus/ornatus* in Sub-Saharan Africa

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The author does not differentiate between *niloticus* and *ornatus* due to the fact that during field observations such identification marks as number of bands on body and tail, proportional length/shape of head, plus exact color of tongue, were not specifically discernable. Therefore, I am merely recording locality data and weather/topographical conditions, not committing to which individual lizard may or may not have been this or that species as it dove into muddy water or charged through the bush with blind abandon.

All sightings in West Africa by the author and Mr. C. T. Banis. Elsewhere in Africa sightings are credited following individual accounts.

West Africa (Senegal, Mali, Ivory Coast, Ghana)

September 28, 1969. Senegal. Approximately 29 km northeast of St. Louis, extreme nw Senegal, not long after crossing the Senegal River that represents the political boundary line between the countries of Mauritania and Senegal, several 4–5 foot adults were observed crossing a paved road at 0830 h. Temperature was warm and humid.

On the same day, some 70 km south of St. Louis, a subadult perhaps 3 ft in total length, was encountered resting in the center of a paved road. From this point forward, to just outside the city limits of Dakar, Senegal, quite a number of large adults crossed the road until approximately 1600 h. The entire countryside was very lush, with tall green grass, many bushes, plus a few large trees scattered here and there. By 1600 h the temperature had changed from warm and humid to hot and unbearable. No lizards were actually collected. All disappeared quickly into dense cover as our vehicle approached; we could hear them thrashing through the bush for a considerable distance.

October 4–6, 1969. Dakar (Senegal) to Kayes (Mali). Numerous adults sighted in lakes, ponds and rivers, that had crested to above flood levels. Observations from just past sunrise until almost sunset. Torrential rains had created a virtual “inland sea,” thus expanding the habitat for Nile monitors far beyond normal. All our sightings from the flatbed of a slow moving train; water often covered part of the tracks.

Millions of mosquitoes plagued us day and night. Countryside varied from open, grassy regions, to full-fledged jungle domains. Many trees had fallen along water courses; both from recent and past storms. These were now being used by monitors for basking. Lizards close to the tracks would immediately dive for cover as our train approached, only to reappear again some 20 to 30 ft distant. Temperature always hot and humid; some rain en route. Fewer sightings after leaving Kayes on way to Bamako, Mali. Closer to Bamako the countryside changed, becoming hillier with fewer bodies of water close to the train.

October 8, 1969. Bamako, Mali. Monitors roam freely on spacious zoo grounds, including the far-reaching elephant enclosure that was also home to a number of huge *Geochelone sulcata*. Plenty of lush vegetation and bodies of standing water throughout zoo grounds; also a few extensive rock outcroppings near water. Temperature quite warm and extremely humid. Skies overcast with rain in the making.

October 9, 1969. A few adults on road between Sikasso, Mali, and the Ivory Coast border (se of Bamako, Mali). Additional specimens on road, mostly subadults, up to 125 km south of Mali/Ivory Coast border on way to Bouaké, Ivory Coast. Countryside very lush with extremely tall grass up to 8 ft in height, plus standing water in all directions. All sightings between 0830 and 1630 h. Temperature hot and humid.

October 10, 1969. Several large adults south of Bouaké, Ivory Coast (towards Abidjan). These in typical “dense” jungle habitat, with many ponds and lakes near the road. Time 0930–1300 h. Overcast day, but quite warm and humid. Judging by habitat preference, these monitors could very well have been *Varanus ornatus* (?). All were exceptionally shy and dove into the water upon being discovered.

November 2, 1969. Ghana (formerly Gold Coast). Several large adults near Legon (north of Accra) in sizeable pond at 0930 h. Lizards dove into water and stayed submerged; we waited for ten minutes, but not one of the animals reappeared. This pond also contained a resident colony of *Rana occipitalis*. Weather sunny, hot and humid.

November 12, 1969. Ghana. Subadult found living in lily-covered pond on grounds of the University of Accra at Legon. Lizard not shy at all, but always faced oncoming movement (mostly human) with mouth agape. We observed this individual often. Pond also full of *Rana occipitalis* and *Xenopus*.

This species (i.e., *V. niloticus* and/or *V. ornatus*), along with ball pythons (*Python regius*), *Kinixys* tortoises and the occasional African rock python (*Python s. sebae*) could be found for sale at the Accra open air market. Some of the lizards were still alive and bound with various lengths of twine; others could be purchased in sections. Unlike *V. exanthematicus*, the Nile monitor was never a plentiful commodity at this market.

Kenya, East Africa

December 23, 1969. Numerous adults observed along the shores of Lake Baringo, approximately 50 mi north of Nakuru and just north of the equator, between 1300 and 1500 h. This was also the home site for Jonathan Leakey and located at an elevation of 3200 ft. Countryside very dry and unbearably hot.

Some of the monitors were clambering over rocks partially submerged at the water’s edge, while others remained stationary atop rocks that were almost too hot for the human touch.

Plenty of agama lizards scurried about, plus inquisitive Nile crocodiles and cantankerous hippos made an appearance from time to time. Sightings by author and C. T. Banis.

Zimbabwe (Rhodesia)

September 8–10, 1977. Numerous adults observed along the shores of the Zambezi River, just above and slightly west of Devil's Cataract (Victoria Falls). Upon being discovered each monitor immediately dove into the water. One was found resting on an outstretched branch some 8 to 10 ft above the river. When it dove into the water, it resurfaced 30–40 ft away. Nile monitors are very common in this region. Water temperature warm to the touch. Air temperature during mid day app. 32°C (89.6°F). No rain. Level of river low, water quite clear, and countryside extremely parched. Sharing the monitors' habitat in this location were elephants, hippos, Nile crocodiles, plus the occasional terrorist firing rockets from the Zambian side of the Zambezi. For monitor and researcher alike it was a time for acute awareness, but occasionally yielding deadly results nevertheless. Sightings by author.

February 15, 1978. Location as previous. However, the Zambezi River was now a commanding torrent, with water level near flood stage and colored a dark reddish-brown; it rained every afternoon. Humidity almost intolerable. Only one Nile monitor sighted. It was resting on flattened green grass next to the river's edge and dove into the water immediately upon being approached. Countryside lush, green, and moisture laden. It proved a difficult task trying to maneuver along the banks of the river. Sighting by author.

Republic of South Africa

September 30, 1975. Komatipoort, E. Transvaal¹, near Mozambique border and approximately 110 km from the Indian Ocean. Elevation ranging between 250 and 300 m. Several adults observed in the Crocodile River bordering Kruger National Park between 0930 and 1500 h. River quite low; many



Figure 1. Zambezi River just above Victoria Falls (Devil's Cataract), Zimbabwe. Nile monitors are common here. They often rest on branches overhanging the river.

exposed rock formations with shallow pools. Temperature warm and sunny (it was South Africa's winter). Countryside very dry. Also found here were Nile crocodiles, African rock pythons, and of course the ever present and ever cantankerous hippos. Sightings by author and R. W. Patterson.

October 1975. Crocodile River, sw of Pretoria, N. Transvaal¹ (not to be confused with the Crocodile River by Kruger National Park). Several adults observed on exposed rocks in river at approximately 1100 h. Lizards dove into water immediately upon being approached. River ran swift and clear, but water quite cool. Air temperature no more than 29°C (84.2°F). Sightings by author and R. W. Patterson.

September 14, 1977. Location as previous. Several adults and one subadult observed. All were at the water's edge, either on muddy bank or perched on rocks. Shores were heavily vegetated. Time 0930 to 1300 h; it had rained earlier in the day. Air temperature warm, but quite cool in the shade (end of South Africa's winter). Water temperature very cold to the touch. Sightings by author and R. W. Patterson.

February 1989. Location as previous. Two large adults (at least 4 ft in length) observed along the river's shore at 1030 h. River running swift and very muddy; no exposed rocks showing. Air temperature hot and humid (South Africa's summer). Sightings by author and R. W. Patterson.

February 28, 1990. Hartebeespoort Dam, west of Pretoria. N. Transvaal¹ (highveld). Elevation near 4000 ft. A number of large adults observed along rocky shores between 1000 and 1430 h. Half the lizards dove into the water as we approached by boat, the others took refuge among a network of extensive rock formations. Air temperature hot and humid. Water temperature almost lukewarm. Sightings by author and R. W. Patterson.

April 12, 1985. Augrabies Falls Nat'l Park, Cape Province². Young monitor, less than 2 ft in total length, observed in a tributary to the Orange River above main falls at 1530 h. Lizard dove into water, swam across, then disappeared into a thick network of reeds. Bright sunny day and quite warm. The Cape flat lizards, *Platysaurus capensis*³, abound here by the thousands; even at the water's edge. Sighting by author.

April 12, 1995. Augrabies Falls Nat'l Park, Cape Prov². One specimen, perhaps 18 inches in total length, observed far below the main falls at Echo Corner. Lizard maneuvered along a rock-strewn shore of the Orange River just prior to noon. It immediately dove into the water when approached, then disappeared among rocks and vegetation. Air temperature quite warm, but solid overcast. Sighting by author.

October 17, 1996. Augrabies Falls Nat'l Park, Cape Prov². One adult and one subadult observed just west of camp prior to noon. Here, a sizeable creek (water level very seasonal) runs over large rocks with deep pools and choking vegetation flanking both shores. This location is at least half a mile from the

1. Transvaal is the former name for the province of South Africa now known as Gauteng.

2. The former Cape Province of South Africa has been split into three. Augrabies Falls National Park is now in the Northern Cape Province.

3. The flat lizards at Augrabies are now considered to be Broadley's flat lizards, *Platysaurus broadleyi*.



Figure 2. Au-grabies Falls National Park, South Africa. Shown is the Orange River Gorge below the main falls. Nile monitors are found in the gorge and in tributaries above the gorge. Very cold here in winter.

Orange River Gorge. Air temperature warm, but solid overcast with occasional wind gusts. Sighting by author and Dave Hewett.

November 30, 1969. Kruger Nat'l Park. One subadult, 30 in total length, observed 13 km north of Lower Sabie Camp at 1700 h. Lizard was sitting on a rock next to the road and immediately took refuge beneath as we approached. There was no visible water within several hundred yards, but grassy fields to each side of the road. Air temperature quite warm, almost solid overcast, and rain in the making. Sighting by author and C. T. Banis.

December 2, 1969. Kruger Nat'l Park. Adult observed at edge of pond near turnoff to Olifants Camp from main road just prior to 1700 h. Lizard dove into water and at the same time motivated six hinged terrapins, *Pelusios sinuatus*, to do the same. Air temperature hot, some overcast, and pond shaded by tall vegetation. Sighting by author and C. T. Banis.

December 4, 1969. Kruger Nat'l Park. Young adult, approximately 3 ft in total length, observed in small pool inside Skukuza Camp (near library complex) at 1430 h. Lizard was used to seeing people; it only took refuge as we approached to within touching distance. Air temperature very hot, near 32°C (89.6°F) in the shade; relative humidity between 60 and 70%.

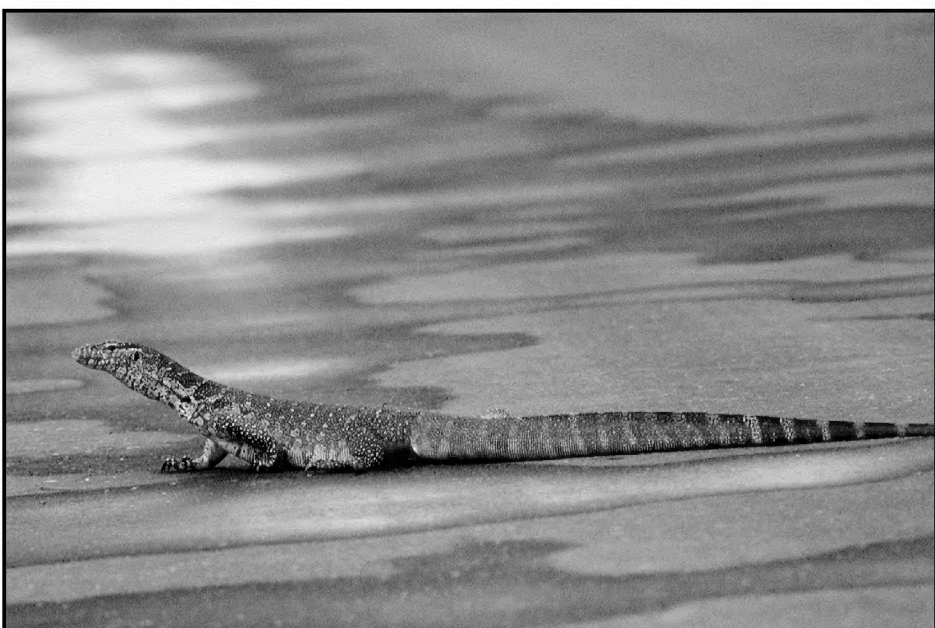


Figure 3. Adult Nile monitor crossing road just north of Letaba Camp, Kruger National Park, South Africa.

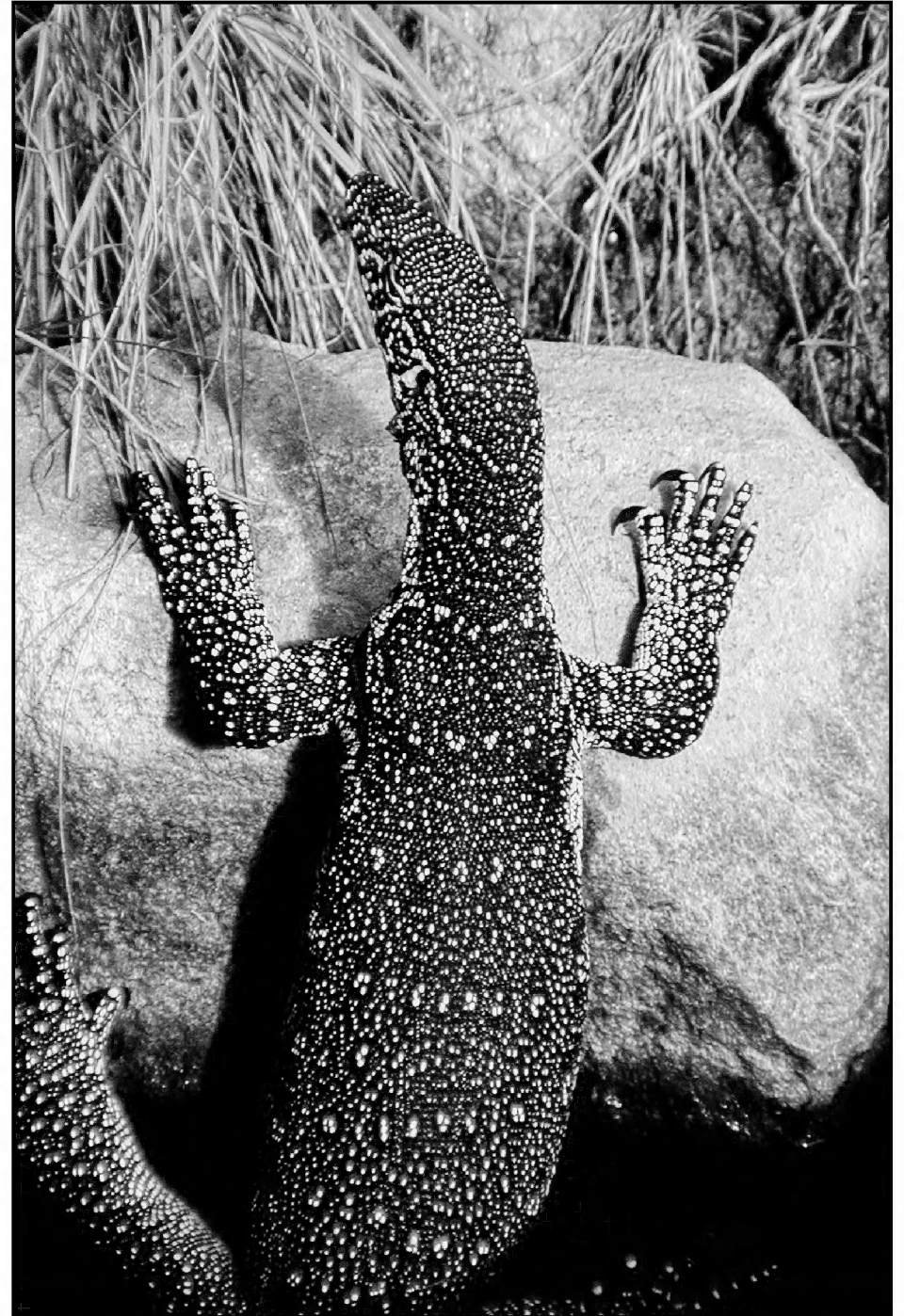


Figure 4. Adult Nile monitor thermoregulating in a small pond southwest of Skukuza Camp, Kruger National Park, South Africa.

Sighting by author and C. T. Banis.

February 3, 1990. Kruger Nat'l Park. Several large adults observed walking through the reeds along the shores of the Sabie River in Skukuza Camp at 1000 h. Nile crocodiles basking not far away. Overcast, warm and very humid. Sighting by author.

February 4, 1990. Kruger Nat'l Park. One adult monitor and one large Nile crocodile basking on rocks at edge of Sabie



Figure 5. Young Nile monitor thermoregulating beside a small pond southwest of Skukuza Camp, Kruger National Park, South Africa.

River just north of Skukuza Camp at 0745 h. Some cloud cover, otherwise warm and humid. Sighting by author and E. Zimmermann.

4 February 1992. Kruger Nat'l Park. Nkuhlu picnic area between Lower Sabie and Skukuza camps at 0920 h. Several large adults walking through flattened reeds along the shore of the Sabie River. High temperature for this day 37.2°C (99°F). Sighting by author and E. Zimmermann.

11 February 1994. Kruger Nat'l Park. Nkuhlu picnic area. Two "huge" adults, at least five ft in total length, at river's edge; time 0940 h. Warm and humid. Sighting by author and E. Zimmermann.

13 February 1994. Kruger Nat'l Park. Four-foot adult on paved road just north of Letaba Camp at 1000 h. Location is several hundred yards from an almost dry Letaba River. Some rain earlier. Warm and humid. Sighting by author.

22 February 1994. Kruger Nat'l Park. Approximately 10 km sw of Skukuza Camp, on the road to Pretoriuskop. A small pond immediately adjacent to the road, plus a larger body of

water behind it (but separated) contained three young and one adult *V. niloticus* — all basking on rocks. Also basking on the rocks, and on the shore of the larger body of water, were numerous hinged terrapins, *Pelusios sinuatus*. A number of small crabs moved in the water; grasshoppers were plentiful in the vegetation. Time 0830 h. Slight drizzle began at 0840 h. Returned to same area at 1000 h. All lizards and turtles still basking. Adult monitor finally eased into water and swam off. Sighting by author.

23 February 1994. Kruger Nat'l Park. Region as aforementioned. Counted six monitors between 0740 and 0920 h. Three were young (probably less than 16 in total length), one a subadult, and two adults perhaps 4 ft in length. Many more terrapins than previous day; I counted 18, ranging in size from 2 to 10 in. Sighting by author and E. Zimmermann.

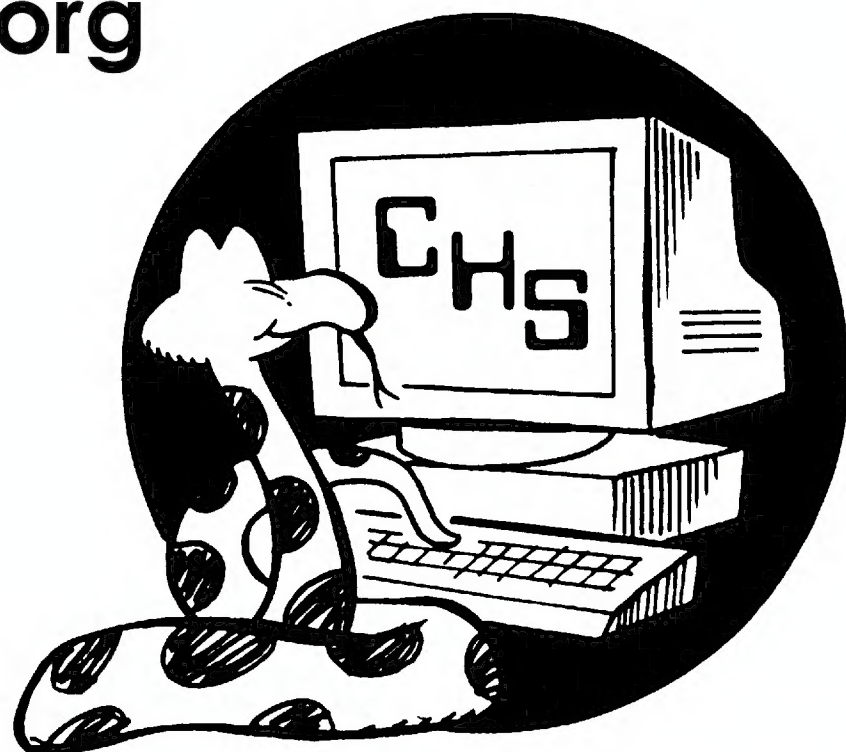
13 February 1996. Kruger Nat'l Park. Region as aforementioned. Exceptionally wet season! No monitors and no turtles observed. All of the basking rocks deep under water. No open ground anywhere; all covered by thick vegetation. Observation by author and E. Zimmermann.

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Frogs of the Genus *Paa* Dubois, 1992, of Submontane Regions of Pakistan

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Abstract

General characters of the genus *Paa* are discussed. A key to and notes on Pakistani submontane species are provided.

Introduction

While collecting frogs and toads near submontane Datta Town, Manshera, NWFP, Pakistan, I encountered a peculiar olive-dark, spotted frog sitting on the sides of a shallow pool of clear water in the course of a dry torrent. The frog jumped into the pool and settled at the bottom. I spotted three more frogs settled at the bottom, which might have jumped into the water disturbed by my arrival; I netted two. In the laboratory the frogs were seen to be quite different from the frogs found in the plains (Khan, 1979). Later the frog was described (Dubois and Khan, 1979) as a new taxon, *Rana hazarensis*. Another similar frog from Azad Kashmir was described (Khan and Tasnim, 1989) as a new taxon, *Rana barmoachensis*. Two similar frogs, *Rana vicina* Stoliczka, 1872, and *Rana sternosignata* Murray, 1885, were already known from alpine Punjab and Balochistan highlands. These four frogs were placed in genus *Paa* Dubois, 1992, that was erected to accommodate the peculiar group of sub-Himalayan frogs.

In this paper notes on morphology, ecology, and reproduction of these obscure mountain frogs are presented.

General characters of the genus *Paa*

Medium (55–62 mm) to large (88–90 mm) frogs; sexually dimorphic: male with longer and stronger hind limbs, groups of dark brown nuptial spines on first two fingers and metacarpal tubercle, opening of internal vocal sac on both sides of mouth floor; tympanum may be indistinct due to skin color (*sternosignata*); skin glistening smooth, slimy, tuberculated: tubercles low, round, ridge-like, smooth, tipped with single (*barmoachensis*, *hazarensis*, *vicina*) or many (*sternosignata*) spines, spiny tubercles confined to dorsum and flanks, however in *sternosignata* extend on ventrum, where concentrated on chest sides in a spiny patch; toes extensively webbed, with distinctly swollen flat tips, a distinct groove present on upper surface of fingers at junction between penultimate and last phalanx. With the help of discs these frogs cling to the rocky walls of the torrent (Khan and Tasnim, 1987).

Habitat and habits: The Himalayan *Paa* are torrenticolous frogs. In the dry season a small stream of water continuously trickles from one pool of water to other in the stream bed. At places overhanging branches of high broad-leaved trees growing along banks partially cut off sunlight. The frogs sit on the exposed side rocks, waiting for worms and insects to appear, on which they feed. When the frogs are disturbed, they dive

into the depths of the clear pool of water and stay at the bottom for considerable time. They may also invade surrounding vegetation to forage on insects and worms. During the rainy season when the torrent has a strong current of water, the frogs climb to the rocks away from the current or migrate under stones which are not under the direct force of the current.

The karez frog, *Paa sternosignata*, unlike the Himalayan *Paa* species, is a frog of flowing karez streams in the Balochistan highlands. The frogs come out of the covered parts of karez underground channels, invading pools in the course of the exposed karez channels. Floating algal clumps provide cover to the frogs. If undisturbed, the frogs climb the rough, rocky sides of the channel, resting in the stony crevices; when disturbed, they jump into the depths of the water hiding under the gravel at the bottom or under dense marginal vegetation and thick floating algal cover. These frogs never leave the vicinity of the water; even in winter, when the upper water surface is frozen, they remain sluggishly active beneath the ice in the flowing water. They feed on water-visiting insects, dragonflies, crabs, small fish, juvenile sympatric *Euphlyctis cyanophlyctis*, etc. (Khan and Ahmed, 1987).

Reproduction: *Paa* males are smaller than females, but have relatively longer legs. Also in the males groups of distinct nuptial spines are present on the first two fingers and metacarpal tubercle, and an internal vocal sac opens on the sides of the mouth floor. The male's call is low pitched, hardly audible outside the torrent. In the Himalayan species (*barmoachensis*, *hazarensis*, *vicina*) breeding occurs in two phases. The main breeding phase is pre-monsoon (April–June); the tadpoles have enough time to develop and meta-



Figure 1. *Paa sternosignata* (Murray, 1885), a female.

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morphose before the danger of being washed downstream by strong current during torrential monsoons. This phase is followed by a lull during July–August, the rainier months. Then there is a short post-monsoon breeding phase in September. The eggs are large, and laid singly, enclosed in a double capsule of jelly.

In the karez frog, *P. sternosignata*, reproductive activity is at its peak from April to August. The male calls singly at sunset from the margin of flowing water. The call is a low-pitched, melodious “*Taroon, taroon, taroon*,” uttered three to four times rapidly. One has to wait 5–10 minutes to hear the next outburst. Calling males are solitary; no chorus is formed. Eggs are large (2.6–3 mm) and are laid in small groups, each enclosed in a double coat of jelly. They soon get attached to the submerged vegetation. Abortive interspecific amplexic pairing is common between *Paa sternosignata* and sympatric *Euphlyctis cyanophlyctis* (Khan and Ahmed, 1987).

The *Paa* tadpole is large and robust, with a bulging body, and a strong muscular tail with moderately broad fins. It is a typical Himalayan torrenticole in habits (Hora, 1930). It is a slow but powerful swimmer in pools of clear water in the bed of the fast-flowing stream. It feeds on algal encrustations on surface of submerged rocks. Most of the time it remains settled at the bottom, grazing. It avoids the main current either by moving into crevices under stones, where the force of the flow is minimum, or by holding firmly to the surface of rocks with the help of its densely papillated oral disc.

The large oral disc is positioned anteroventrally. Two pre-oral rows of long papillae border the pre-oral labium and are widely interrupted antero-medially, while three rows of papillae border the post-oral labium. The labial tooth row formula of the Himalayan species is 8 (7)/3(2), while in the *P. sternosignata* tadpole the dental formula is 5(4)/3. The beak is large; its finely serrated pre-oral half is strongly arched and overhangs the similar post-oral half (Khan and Malik, 1987). *Paa* tadpoles of the Himalayan species range from 70 to 75 mm in total length while *P. sternosignata* tadpoles are 78–80 mm at Stage 40 (Khan, 1965).



Figure 2. *Paa sternosignata*, a male, ventral view. Note swollen forelimbs and patches of spinules on chest.

During late November I collected *Paa* tadpoles near Datta Town, in the Himalayas, from pools at 4°C. These tadpoles were apparently from late amplexic pairs. Their empty intestines indicated that they were not feeding; probably they were deriving energy for winter from their fat bodies and represent the dormant stage of torrenticolous tadpoles. After surviving the winter, they probably move into crevices exposed to the sun to metamorphose early the next summer.

Key to Frogs of the Genus *Paa* in Pakistan

1. Body dorsum smooth, few tubercles on flanks-----*Paa vicina*
Body dorsum with pustules----- 2
2. Pustules large, multispinulate; belly spiny---
-----*Paa sternosignata*
Pustules small, unispinulate; belly spineless-----3
3. Spines on longitudinal ridges-----*Paa hazarensis*
Spines on pustules-----*Paa barmoachensis*

Notes on Species

Paa barmoachensis (Khan and Tasnim)

Common name: Kashmir Torrent frog: *Kashmir nadi maindak*
1989 *Rana barmoachensis* Khan and Tasnim, J. Herpetology 23(4):419-423.

Type locality: Barmoach, Goi Madan, Azad Kashmir.

Color: Dorsum olive-gray in life with scattered dark spots more numerous on flanks than in middorsum, a distinct pair of dark spots between eyes; dark mottling on forehead, jaws, supratympanic fold, canthus dark; fore- and hind limbs with crossbars breaking into a network of small brownish spots on the hind-thighs. Ventrums dirty white, with light suffusion under hand and foot; throat and gular region mottled with gray; web between fingers olive-gray (Khan and Tasnim, 1989).

Snout–vent length: 56–61 mm.

Distribution: As yet this species is known only from its type locality.

Paa hazarensis (Dubois and Khan)

Common name: Hazara torrent frog: *Hazara nadi maindak*
1979 *Rana hazarensis* Dubois and Khan, J. Herpetology 13:403-410.

Type locality: Datta, District Manshera, Pakistan.



Figure 3. *Paa hazarensis* (Dubois and Khan, 1979).

Color: Body dorsum greyish superimposed with a network of darker color (dark olive green in life). A clear grey transverse band on the back of the head joining the posterior borders of the eyelids. Later edge of sypratympenic fold and canthus dark. Upper parts of the hind limbs with dark cross bars; hinder parts of thighs with a network of small blackish spots. Lower parts of the body and limbs whitish; throat mottled with grey. Webbing of feet greyish (Dubois and Khan, 1979).

Snout–vent length: 55–62 mm.

Distribution: Widely distributed in torrents in the Rush Valley of Hazara Division, Northwestern Frontier Province, Pakistan.

Paa sternosignata (Murray)

Common name: Karez frog: *Karez maindak*.

1885 *Rana sternosignata* Murray, Ann. Mag. Nat. Hist., London (5)16:120.

Type locality: Quetta, Balochistan, Pakistan.

Color: Olive-brown or dark green above, with small irregular yellow, orange, or reddish spots; ventrum white with profuse fine dark brown or black mottling. Young, dark brown or olive, with blackish blotches. Pupil reduced to a narrow slit.

A transverse dark streak runs across the eye; a similar vertical streak runs downward across the golden brown iris, giving the eye a peculiar appearance. This feature is also present in the tadpole.

Snout–vent length: 88–90 mm.

Distribution: The karez frog abounds around Quetta and Mastung in karez channels. It has also been reported from Afghanistan up to 1800–2000 m of elevation (Kullmann, 1974).

Paa vicina (Stoliczka)

Common name: Murree hills frog: *Maree maindak*

1872 *Rana vicina* Stoliczka, Proc. Asiatic Soc. Bengal, Calcutta 1872:124-131.

Type locality: Murree, alpine Punjab, Pakistan.

Color: No data.

Distribution: Stoliczka (op. cit.) reported this frog from fountain water in Murree, alpine Punjab, Pakistan. A single specimen was collected by Mertens (1969) from the area bordering Azad Kashmir and assigned to *Paa pleskei*, which was later identified as *Paa vicina* by Dubois (1976).

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Comparative Efficiency of Glue Board, Pitfall and Funnel Traps in Capturing the Five-lined Skink, *Eumeces fasciatus*

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Capture method can have important consequences for the success of field studies. Some trapping methods require little setup time but extensive monitoring, and vice versa. Not only do methods differ in efficiency, but also in risk of injury or death to the animal. Thus, where experimenter time is limited and the goal is to capture unharmed live animals, it is important to consider the relative tradeoffs of different capture methods. Our objective was to evaluate the relative efficiency and mortality incurred using three different trap types for *Eumeces fasciatus*, a common North American skink: pitfall, glue board, and funnel traps.

In comparison to other lizard taxa, skinks are difficult to catch by hand or noose because of their speed, general wariness, and fossorial tendencies. Thus, trapping is more attractive for capturing skinks, and pitfall traps and screen funnels have been used effectively to capture *E. fasciatus*. A more recent technique is the glue board trap (with or without bait), which has been used successfully to capture many lizard species (Bauer and Sadler, 1992; Glor et al., 2000; Rodda et al., 1993; Vargas et al., 2000; Whiting, 1998).

The following trap types were used to capture *E. fasciatus* in this study in Montgomery County, Tennessee (36.52°N, 87.35°W): (1) Glue board trap: Victor® 13 × 21 cm manufactured by Woodstream, an EKCO Group Company, Lititz, PA 17543, USA. The trap was baited by sticking a cricket to its center. (2) Pitfall trap: a No. 10 food can placed within a rock outcrop or large area of woody debris. The trap was baited with a cricket (the crickets' hind legs were removed to prevent them from jumping out of the trap) to help attract *E. fasciatus* (Fitch, 1954). Large rocks and woody debris were arranged so as to provide lizards access to the rim of the cans. (3) Funnel trap: plastic mesh commonly sold in department stores as "shelf liner material" was fabricated into cylinders about 29 cm long and 12 cm in diameter with a funnel opening into each side (Fitch, 1954). This material was used because of economy and ease of fabrication.

The field study took place in cut-over woodlands, which Fitch (1954) described as good skink habitat. These areas were within walking distance of one another. Each area contained 5–20 trap locations (area 1 contained trap locations 1–20, area 2 contained trap locations 21–25, and area 3 contained trap locations 26–30). At each trap location, the three trap types were set together. Pitfall and funnel traps were checked daily whenever environmental conditions allowed lizards to be active (at least 18°C air temperature and sunny) from 15 April to 6 May 2000. Pitfall and funnel traps were patrolled a total of 14 days and were active for 264 hours. Overnight hours did

not count for pitfall and funnel traps in this study. Glue board traps were checked four times daily until the first death occurred. After this death, glue board traps were deployed only when they could be patrolled continuously by experimenter walking back and forth in the numbered trap line because of the risk of injury or possible death of captured animals on unattended glue board traps, but this also could have reduced captures. Glue board traps were set out for approximately 6 h for each trapping session and were patrolled a total of 12 days for 72 hours from 15 April to 6 May 2000.

In an attempt to increase glue board trap longevity and reduce mortality early on in this study at the same time that we increased patrols, we exposed only one-third of the trap area at a time by removing 1 cm strips of the paper cover for every 3 cm of length on the sticky surface of the glue board traps. As the glue on the exposed portion became unusable we removed another 1 cm strip to maintain the one-third active surface area. This increased the longevity of the trap threefold.

Capture efficiency is defined as the number of *E. fasciatus* captured per trap per hour. During the 22-day study (15 April to 6 May) in 2000, 16 *E. fasciatus* were captured. A Chi-Square test was used to test for difference in capture rate among trap type. The expected number of captures adjusted to the number of hours each was active in the field was derived for this test. For example, glue board traps were patrolled for 72 of 336 total hours for both traps or 21.4% of the total time both traps were active. Then we multiplied this percentage times the total number of captures ($N = 16$) to get the expected 3.43 glue board trap captures. We observed nine glue board and seven pitfall trap captures compared to the expected 3.43 glue board and 12.57 pitfall trap captures when adjusted to the number of hours each was active, a highly significant difference ($\chi^2 = 11.52$, $df = 1$, $p = 0.0007$). In addition, no lizards were captured with the funnel traps. Thus, there was a significant difference in capture efficiency among trap types showing glue board traps were more efficient at capturing *E. fasciatus* than pitfall or funnel traps.

Another Chi-Square test was performed to test for difference in capture rate between pre- and post-modified glue board traps, adjusted to the number of hours each was active in the field. We observed one pre-modified (active 6 hours) and eight post-modified (active 66 hours) glue board trap captures which were very close to the expected 0.75 pre-modified and 8.25 post-modified glue board captures. Therefore, the difference in capture efficiency was not significant ($\chi^2 = 0.09$, $df = 1$, $p = 0.832$).

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Mortality was defined as the percentage of deaths that occurred within 24 hours of capture (Vargas et al., 2000; Whiting and Alexander, 2001). Lizards captured with glue board traps (N = 9) experienced 22.2% mortality rate (2 deaths) during the capture phase. Lizards (N = 7) captured in pitfalls traps had 0% mortality. The one death on the glue board traps prior to modification was a small, second-year, male *E. fasciatus* who suffocated in the glue and could not be removed from the trap in one piece. Thus, we modified the trap for easier and safer lizard removal. We found very similar trap efficiency between the full surface and one-third surface glue board traps. After this modification to the glue board traps one more death occurred. This death appeared to result from the simultaneous capture of a subordinate second-year male on the same glue board trap with an adult male. The adult male apparently killed the juvenile male that could not retreat as evidenced by the blood flowing from fresh wounds on the juvenile. As a result of this incident, we patrolled the glue traps more frequently. Similarly to this study after glue board trap modification, Whiting and Alexander (2001) reported 0% mortality for *Platysaurus broadleyi* and *P. intermedius wilhelmi* when kept in confinement after capture with glue board traps. Conversely, Vargas et al. (2000) reported 47.6% mortality to *Anolis carolinensis* during their capture and confinement period. At least two potential factors may contribute to this difference in mortality between the studies. First, skinks have much harder integument than anoles, and thus may be less susceptible to injury as animals are removed from the trap. Second, Vargas et al. (2000) used full-surface glue traps, whereas we used one-third surface traps from which the lizards were much easier to remove. Note that we did not require the use of cooking oil to safely remove animals (as Vargas et al. [2000] required), because one-third surface traps did not bond to the animals' skin as tightly. Although we cannot separate the effects of changes in

trap monitoring and glue surface area in our experiment, our observations indicate that both may be important in reducing mortality. Prior to the experiment, we expected that increased monitoring would reduce the risk of death from overheating or desiccation. In addition to these factors, we were surprised to find that animals can “drown” on full-surface sticky traps. In fact, one time we were not able to reach the full-surface traps quickly enough to prevent death, whereas animals on one-third surface traps were always found in good condition (unless attacked by a conspecific).

No captures were made with the funnel traps, although one of us (JRS) captured a five-lined skink in a 1999 pilot study using a funnel trap. The failure of funnel traps may have been due to the coarser mesh of the trap used in the 1999 pilot study. The failure of funnel traps may also be because the lizard could not see the prey item inside the funnel trap, the openings in the funnels could be too small for the lizard to enter, or too large allowing the lizard to escape.

In conclusion, the results of the field season suggest glue board traps were more efficient than pitfall traps on a time of effort basis, but pitfall traps were safer and required less monitoring effort. Patrolling more often and reducing glue trap surface area probably eliminated the glue board trap mortalities that occurred early on in this study. Because we found no decrease in glue trap efficiency when we reduced the surface area, it is a good modification to use because it is much easier to remove animals from the glue trap.

Acknowledgments

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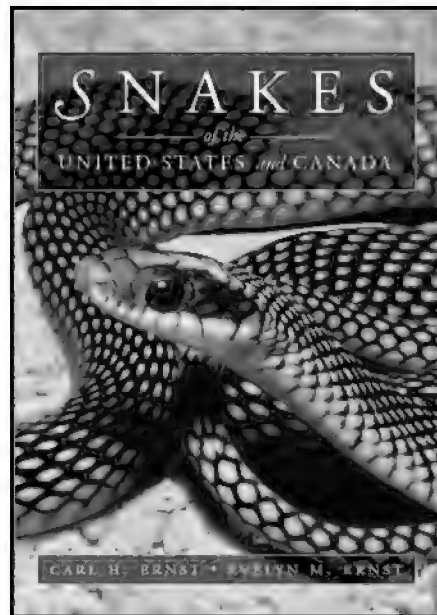
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**Book Review: *Snakes of the United States and Canada* by Carl H. Ernst and Evelyn M. Ernst
2003. Smithsonian Books: Washington and London. 680 pp. ISBN 1-58834-019-8. \$70.00***

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This is the long awaited "state of the art" book on the snakes of the United States and Canada. It has been methodically, comprehensively and expertly produced by authors Carl and Evelyn Ernst and should satisfy all of the expectations of the herpetological community. The book is not only well organized but is also very well written. I have not been able to put it down since it arrived.



The volume begins with a Table of Contents that quickly directs the reader to the first page of each species account. More natural history books and field guides should begin this way. Following is the Introduction, which consists of succinct general discussions of Taxonomy, Origins, Modern Snake Fauna in North America, Characteristics, Habitat, Activity Periods, Movements, Reproduction, Diet, Predators and Defense, Venoms, Populations, and Conservation. The section on taxonomy is most refreshing; rather than engaging in a convoluted discussion of systematic methodology, it simply presents a concise outline of the content the following groups:

Class Reptilia

Subclass Lepidosauria

Order Squamata (snakes, lizards, amphisbaenians)

Suborder Serpentes (snakes).

Next, a section on Identification of the Snakes of the U.S. and Canada consists of drawings of head scales (dorsal, ventral, lateral) and body scales (with directions for counting scale rows) and other information that allows the reader to use the keys that follow. This is followed by a simple key to the families of snakes of the U.S. and Canada.

The heart of the book consists of 551 pages of species accounts arranged under the following family headings in order: Leptotyphlopidae, Typhlopidae, Boidae, Colubridae, Elapidae, and Viperidae. A short but definitive discussion is given for each family as it appears. The accounts are given in alphabetical order for both genera and species. Both scientific and common names are given in the title of each species account. Along the way, keys are given for the genera and species of each family. The keys that I have tried on species I know well have worked admirably.

Each species account contains the following sections: (1) recognition (description); (2) geographic variation (here is where subspecies are discussed); (3) confusing species (those that might be confused with the specimen at hand); (4) karyo-

type (number and characteristics of chromosomes); (5) fossil record (an exceptionally thorough account); (6) distribution (supplements range maps nicely); (7) habitat; (8) behavior; (9) reproduction; (10) growth and longevity; (11) diet and feeding habits; (12) predators and defense; and (13) remarks (many very interesting notations). Keepers of snakes can enhance herpetological knowledge by keeping accurate records relative to some of the subjects above (e.g., 8, 9, 10 and 11).

The many detailed facts about each species and subspecies of snake is what will endear this book to its readers, as I found out when I began reading the species accounts of the taxa that I was particularly fond of. In each case I was rewarded by information that I was not previously aware of.

Turning now to the illustrations, a large color photograph of an alert *Drymobius margaritiferus* (Central American speckled racer) decorates the cover jacket. Moving to the inside of the book, all species and many subspecies are depicted by camera images, all in color. Most of these illustrations are very good, and along with the keys and descriptions, should allow the reader to identify the any snake at hand. A very few illustrations, however, reflect light badly and/or are out of focus, somewhat obscuring the characteristics of the animals.

Each species has its own range map. Ranges are indicated by solid areas of dark gray that do not hide the outlines of states and provinces on the map. Subspecies are not indicated. My experience is that simple range maps like these work and that complicated ones that attempt to delineate all of the subspecies in a species have problems, especially if they are "computer generated." All of the range maps in this book that deal with snakes that I am familiar with appear to be quite accurate.

Following the species accounts is a glossary that gives the derivation of the names of all the species and subspecies in the book. I always find such information fascinating (e.g., *infernalis* [belonging to Hades], *priapus* [Roman god of male reproductive ability, referring to the large hemipenial spine], *meahllmorum* [derived from the names of 11 associates of Hobart M. Smith]).

The bibliography of this book — 94 pages of references — is a treasure in itself. An index to scientific and common names of snakes in the book ends the volume. Carl H. Ernst is Professor of Biology at George Mason University in Fairfax, Virginia. Evelyn M. Ernst is director of information for the National Science Resource Center in Washington, D.C.

This excellent book is undoubtedly the most comprehensive volume ever published on the subject and will be the standard work for years to come. It will provide many interesting and informative hours of reading for the herpetologists of the world.

HerPET-POURRI

by Ellin Beltz

Voice of experience

“There’s no such thing as a soulful connection to an alligator. They aren’t like bears or panthers. Gators don’t bond with you, they don’t care about you.” Michael Bailey a 26-year-old alligator wrestler. [*Miami Herald*, February 16, 2004, from Alan Rigerman]

Make and sell reproductions

A local council in Wales only had enough money for one kind of animal crossing signs, so they put up “frog crossing” yellow diamonds. The cows will have to wait until more money becomes available. Then in a cruel twist of fate, the frog crossing signs were stolen. One councilor said, “But on a very non-politically-correct theme, however, I think I would rather hit a frog with my car than a cow.” [*The Western Mail*, Wales, UK, March 5, 2004] This issue has come up before, just about every municipality that orders special signs loses some until they make reproductions available for purchase. Some of the more enlightened redirect this money to additional signage; others let independent contractors scoop up the money instead.

Anacondas are not native in Florida

A 44-year-old woman “was arrested in Clearwater, Florida, on an animal-cruelty charge after onlookers said the homeless woman kicked, stomped and choked an approximately 7-foot anaconda before running away, dragging the snake that she said was hers behind her,” according to the Little Rock, Arkansas, *Democrat-Gazette* January 22, 2004. [from Bill Burnett]

New mystery disease strikes turtles

Loggerhead sea turtles face diseases as well as the danger of boat strikes, sonar and human hunting. Now a newly discovered disease has attacked at least 60 loggerheads on the South Florida coastline in the past 4 years. “Researchers have found unidentified toxins in the turtles that cripple their nervous systems and eventually lead to paralysis. But they don’t know where the toxins are coming from. Researchers are studying whether the poisons originate in a new species of jellyfish that the turtles eat, or are from parasites.” While most of the earliest turtles which were treated for this disease died, now about half get better. Full recovery takes up to six months and follows intensive IV feeding, antibiotics and hand feeding. [*Miami Herald*, January 16, 2004, from Alan W. Rigerman]

Intended to benefit sea life

• “It is a vacuum cleaner with teeth that eats turtles,” said the head of the Turtle Hospital in Marathon, Florida, of the hopper dredges approved for use in Key West harbor by the Army Corps of Engineers. All the agencies involved in the dredging say that their studies show that trawling for turtles before dredging would not save any. The operators will reassess the situation if even one turtle is caught, promised an agency head.

[*Miami Herald*, February 24, 2004 from Alan Rigerman]

• A bill in the Hawai’i state legislature would ban lights shining on the ocean. Outdoor lights have been shown to disorient turtles and may influence other wildlife as well, according to state officials. Fishermen point out that “flood-lights scare off all sea life, including nocturnal fish, turtles, sea birds and monk seals.” [*Honolulu Advertiser*, January 30, 2004, from Ms. G. E. Chow]

Do not mail snakes - version 6.12

Herpetologists know better than to even ever think about mailing snakes. However that message sometimes seems to miss the general populace. Here from Arkansas, rarely a hotbed of critical thinking, comes a chilling little tale. Two men, father and son are being tried by the federal government because one or both of them may or may not have had anything to do with a copperhead snake that was mailed to a person who may or may not have taken a few 9-mm shots at the son and his girlfriend while they rode in an SUV a couple of years ago. You with me so far? This trial had gone on a week, a whole week of federal witnesses and courtroom and judge time, by the time the article was written. All this for a snake in a box of styrofoam peanuts that was opened by the girlfriend of the addressee while she sat between him and another man while they all rode in a pickup truck together. This is Arkansas, o.k.? So the snake slithers up out of the peanuts. The guy on the passenger side tosses box, snake, peanuts and all out the truck window and into the grass. Sheriff’s deputies arrived later. They found the snake still in the grass and shot the snake up so good that it ended up in two pieces and was preserved in a jar as the government’s main piece of evidence. The son claimed he found the nearly dead snake in a cooler on his dad’s porch where it had been put by the person who had actually caught it. Why, you might ask? Well, the father had proposed this brilliant act as payback for those 9-mm shots that apparently started this whole chapter of an ongoing saga more suited for Jerry Springer than a federal court of law. In any case, these drama queens missed out on material-mailing charges, which carry statutory penalties of 20 years and witness tampering charges which can add up to 10 years. Perhaps even these prosecutors decided there’s more dastardly doers out there more deserving of a free life in the federal slammer than these two. [*Arkansas Democrat-Gazette*, January 27 and 29, 2004, both from Bill Burnett]

Imagine five years for 25 snakes

Please do not write me letters about the following quote and article. In fact, play “find the mistakes.” I typed as it was printed in the *Miami Herald*, January 23, 2004. Police in La Ceiba, Honduras, “detained two men for allegedly trying to smuggle out of the country 25 boa constrictors that are unique to Honduras and threatened with extinction.” Detangle that sentence and follow it with the following interesting statements. “The snakes sell for at least \$1,000 each in the United States. `The reptiles are about to disappear from the country

because of illegal trafficking,’ [the] police spokesman . . . said. The snakes, covered with spots of various colors, measure up to 16 feet long, and live in the Caribbean Cochinis Keys off the northern coast of Honduras. They are not poisonous.” Of course not. No snake is poisonous; although some are venomous. The story may have gotten mangled due to the fact that the men were busted about 220 miles north of the capital, Tegucigalpa. The men face sentences up to five years apiece if convicted on animal trafficking charges. [from Alan Rigerman]

Not a federal case, but equally scary

“A snake slithered out of a sack of potatoes [purchased at a Wal-Mart] in a Semmes, Alabama, home . . . but it didn’t make it far. An 11-month-old boy caught it and took a bite out of it. . . . [The mother] got the snake out of her baby’s fist, and someone else cut off the snake’s head.” The child was uninjured. The Wal-Mart manager “said the store pulled the remaining bags of potatoes that came from the same place . . . packaged in Houston.” [Little Rock, Arkansas, *Democrat-Gazette*, January 24, 2004, from Bill Burnett]

This story has legs, slow legs, but legs

I think I wrote this story every year for the first four or five and then gave up, but once a year someone at the Gopher Tortoise Council (now at <http://www.gophertortoisecouncil.org>) gets ahold of a local reporter who diligently reports it. And then all the other writers, myself included, either copy it or ignore it as do many people who could really do something to benefit the species. So once again, here goes. Gopher tortoises, *Gopherus polyphemus*, used to be one of the top end critters in the Florida landscape before drainage, mechanized agriculture and development delivered the triple whammy to its habitat, high, dry land with a wide diversity of plant and animal species. The burrows they dig are home to a wide variety of other animals which use them to escape the relentless midday heat. Gopher tortoises mature in about 15 years, but only a very few of their offspring will survive the gauntlet of conditions, predators and random chance to reach adulthood. This means that every one taken is a direct loss to the species as a whole. Even in areas considered protected, and those few under restoration, the tortoises still face threats including cars, dogs, coyotes, humans and respiratory diseases. [Orlando, Florida *Sentinel*, January 26, 2004, from Bill Burnett]

97 percent fat free

Once a 60s roadside attraction, Gatorama reinvented itself in the late 80s to legally raise alligators when that became legally possible. Now they raise and sell gator meat, both locally and as frozen food, worldwide. Comparing 4 ounce servings, beef has about 200 calories and 23 percent fat, skinless chicken breast is 170 calories, 21 percent from fat, while the alligator has 145 calories and only 3 percent fat. [*Miami Herald*, February 19, 2004, from Alan Rigerman]

Depends on your perspective

Some may find the following article utterly tasteless. With that as a disclaimer, here is the text of an article on tanned

cane toad purses from *FHM Magazine*, December 2003.

“ . . . Peter Houston does his best work in leather . . . uses unconventional skins . . . takes hideous cane toads and turns them into attractive carryalls. And killing cane toads isn’t just good for business, it’s good for the planet. ‘Cane toads are a huge pest in the northern parts of Australia. . . . They were introduced to control a crop-threatening beetle, but they have no natural predators. Anything that eats them dies.’ [He] turns the creatures into everything from golf-ball holders to cell-phone cases. ‘To make the pieces, we put the toads in a refrigerator until they become torpid. . . . Then we put them in a freezer, which kills them. It’s quite humane, really.’” [from Alan Rigerman with the note, “Can you believe?”]

Toad-al victory

“The Supreme Court refused this week to hear a San Diego developer’s challenge to the Endangered Species Act, letting stand lower court rulings that protected the 3-inch southwestern arroyo toad, also at the root of battles over growth in Santa Clarita. The endangered toad lives in creeks and streams throughout Southern California, including the Santa Clara River and in northern San Diego County, where Rancho Viejo LLC planned to build a 280-home development in 2000. The U.S. Fish and Wildlife Service said the company’s plans to use dirt from a nearby streambed would disturb the toad’s habitat, and suggested bringing in dirt from elsewhere.” [Santa Clarita, California, *Daily News*, March 2, 2004, and the same article from the *Times-Standard*, Eureka, California, from Bradford Norman]

Western Wild Life

Last week at the annual meeting of the Western Section of The Wildlife Society (Rohnert Park, CA, February 26 to 28, 2004), an entire afternoon was devoted to amphibian and reptile talks. There were two papers on California tiger salamanders (*Ambystoma californiense*), one about a cluster of hybrid populations in the Salinas Valley derived from larvae raised for bait decades ago, and another about excavation and relocation of individuals during a pipeline project in Alameda County. We also heard about arroyo toads (*Bufo californicus*) inhabiting ephemeral braided stream channels in southern California, as well as more depressing news about chytrid die-offs. Laura Burkholder, an acquaintance from Humboldt County, presented results from a demographic study of tailed frogs (*Ascaphus truei*). It’s always fun to hear the results of a study after having been out there in the streams at night, helping to collect frogs.

There was also a fascinating session titled “The Grinnell Legacy” which included a couple of amphibian papers. Joseph Grinnell, of course, kept detailed notes during an early 20th Century survey along a transect across the Sierra Nevada. One presenter showed us a passage from Grinnell’s notes which predicted that the full value of his data might not be fully achieved for perhaps a hundred years. There we sat, exactly 96 years after he wrote that passage, using his information to assess changes in animal abundance. Perhaps most striking, for me, were Carlos Davidson’s maps showing wind

patterns and pesticide drift from the central valley into the surrounding mountains. At longer distances from the pesticide source, historical populations documented by Grinnell and others persist today. Upwind, closer to the source, those same species have disappeared. Ongoing work by Gary Fellers and others is in the process of producing additional documentation. [Ken Mierzwa, March 4, 2004, by email]

Happy Salamanders live in Cowlifornia

“Rare critters that live in seasonal rainwater pools in California’s grasslands, may actually benefit from having large, heavy-footed cattle grazing around their habitat. . . . [Researchers] say the diversity of the ephemeral fauna and flora in the water increases when cows keep weedy non-native grasses under control. . . . The rare creatures found in the short-lived ponds are adapted to a unique regimen. The area floods completely in the winter, sprouting seeds, hatching salamander eggs and opening the cysts that hold the shrimp’s eggs.” [Eureka Times-Standard, February 4, 2004, from Brad Norman]

Depends on if its hungry or not

A 200-pound, 14-foot-long python escaped from its juvenile owner and was on the loose in Fruitland Park, Florida. Officers asked local residents to please call the police if they saw the snake and not to attempt to catch it themselves even though its owner claimed it “wasn’t aggressive.” [February 18, 2004: Leesburg, Florida *Daily Commercial* and the *Orlando Sentinel*, both from Bill Burnett]

Amphibian Believe-it-or-Not

The *Sun* reports that a three-headed frog has been found alive in England. “Wildlife experts have been stunned by the apparent discovery of a three-headed frog hopping around the garden of a children’s nursery. Kids were left goggle-eyed by the sight of the strange, multi-faced creature, which also has six legs.” The kids caught the frog in a bucket. “Staff at the . . . nursery in Weston-Super-Mare believed the mutant amphibian was three frogs huddled together at first. But they soon realized it was just one animal with three croaking heads.” And let it escape. “Animal experts were today trying to capture the frog to carry out further tests to investigate its biological make-up. Mike Dilger, a wildlife biologist from the BBC Natural History Unit in Bristol, said: “I have never seen anything like this before and as far as I am aware it is unprecedented. “Frogs have a very primitive embryology — so the occasional extra toe is not that unusual. But this is something different.” He added that the reason for the three-headed frog’s development could have been damage to the embryo, a spontaneous mutation such as that of conjoined human twins or factors in the environment, including pollution and changing climate.” A later story reported that “John Wilkinson, a frog ecologist at the Open University, said it appeared, from pictures taken before the escape, to be an extremely unusual find. ‘I have certainly never seen anything like it before. It seems to be an example of Siamese birth whereby three individual animals all have arisen from the same fertilized embryo but they haven’t divided properly. We know this can happen because it happens in other animals,” he said. “I do retain

some skepticism, however. If you look at the pictures, the lower frog does appear to have different characteristics to the two other frogs. It is not unusual to find more than one male frog clinging very tightly to a female. They get very randy, as we all do, and will not let go. We are in the breeding season.” [March 5, 2004 - London, UK: *The Sun*, online <http://www.thesun.co.uk/article/0,,2-2004103085,00.html> and *ITV* online <http://www.itv.com/news/1429164.html>; both from Wes von Papineäu by E-mail] This story came out the day I was writing this column, so I have no further information. Perhaps, like the excessively long snake of a while back, it will prove to be a retouched photo and a slow news day, but for today at least it is news.

He said “prince” not “principal”!

The principal of a local elementary school “kissed an Argentine horned frog on loan from the Frazer Zoo . . . during a school-wide assembly. He promised to kiss a frog if students reached their goal of collecting 416 books to send to a school in Namibia, Africa. The students exceeded that goal as they collected 722 books to send to the Onangulo Combined School, a rural school in northern Namibia on the West Coast of southern Africa.” [Coatsville, Pennsylvania *Ledger*, March 4, 2004]

Note of the Month

“Thanks for the Number One Ranking in the last CHS *Bulletin*. Actually, my Mom, in Florida is probably Number One. Just the advantage of alligators in the state, and her subscribing to two newspapers helps. Hope all is well. Bill Burnett”

Thanks to everyone who contributed this month! But now you really have to contribute too as there is not one single thing left in the file folder. Please send whole pages of newspaper, they’re light and you don’t have to cut them into cute little snowflakes or strips, first. But do please be sure your name and the publication slug are on each page. Then mail them to me: Ellin Beltz, POB 1125, Ferndale, CA 95536-1125.



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Herpetology 2004

In this column the editorial staff presents short abstracts of herpetological articles we have found of interest. This is not an attempt to summarize all of the research papers being published; it is an attempt to increase the reader's awareness of what herpetologists have been doing and publishing. The editor assumes full responsibility for any errors or misleading statements.

JELLY ENVELOPES AND UV-B

K. Räsänen et al. [2003, *Herpetologica* 59(3):293-300] note that animals have evolved a number of ways to protect themselves from the harmful effects of ultraviolet-B (UV-B) radiation, but little is known about the relative importance of different mechanisms protecting amphibian embryos from UV-B radiation. Using enzymatic removal of gelatinous coats (jelly envelope) surrounding the eggs of *Rana temporaria*, the authors tested the hypothesis that the jelly envelope acts as a sunscreen that protects embryos from harmful effects of UV-B radiation. Two independent factorial laboratory experiments were conducted, employing three different UV-B levels (no UV-B, normal, and enhanced) and jelly removal treatments (control, modified, and completely removed). The results showed no UV-B $\times$ jelly removal treatment interactions in survival rates or in frequency of abnormal individuals, suggesting that jelly removal did not increase susceptibility of embryos to UV-B radiation. These results support the contention that the jelly envelope is not the most important means of protecting *R. temporaria* embryos from UV-B radiation. Other factors (e.g., melanin pigments, other sunscreen compounds, effective DNA-repair mechanisms) must be responsible for the high UV-B radiation tolerance of embryos.

TADPOLE BEHAVIORAL RESPONSES

C. A. Pearl et al. [2003, *J. Herpetology* 37(3):572-576] compared behavioral responses of larvae of three Pacific Northwest anurans from different hydroperiods to water borne cues of native and introduced predators. Two native anurans (Pacific treefrog, *Pseudacris regilla*, and northern red-legged frog, *Rana aurora aurora*) and introduced bullfrogs (*Rana catesbeiana*) responded to water conditioned by native reddsides (*Richardsonius balteatus*) by increasing refuge use. The larvae of the two native anurans differed in their response to introduced predator cues. *Rana aurora aurora*, which occur in temporary and permanent waters, responded to both introduced bluegill sunfish (*Lepomis macrochirus*) and introduced crayfish (*Procambarus clarkii*). *Pseudacris regilla*, which occur primarily in temporary ponds, did not respond to water borne cues from either introduced predator. The broader responses of *R. a. aurora* may indicate greater behavioral plasticity or more exposure to novel predators than experienced by *P. regilla*. Larvae of introduced *R. catesbeiana* responded strongly to cues from two fish native to the Pacific Northwest but did not alter behavior in response to any of five potential predators with which they coexist in their native range. Fish that occur with *R. catesbeiana* in their native range generally find bullfrog larvae unpalatable. This pattern suggests that bullfrog larvae can recognize cues of novel predators that may find them palatable, which could contribute to their success as an invasive species in the region.

COLOR VARIATION IN GREEN ANOLE DEWLAPS

J. M. Macedonia et al. [2003, *J. Herpetology* 37(3):467-478] note that a hallmark trait of the lizard genus *Anolis* is the presence of remarkable interspecific variation in dewlap color patterns. Yet, considerable intraspecific variation also occurs in many *Anolis* species. In Florida different populations of the green anole (*Anolis carolinensis*) exhibit red, pink, magenta, and even greenish-gray dewlaps. To date, comparisons of color variation in this species have used subjective techniques based on human color perception. Instead, this study used an objective method—reflectance spectrometry—to quantify *A. carolinensis* dewlap and body color variation along a transect from northeastern to southwestern Florida. Reflectance readings of local vegetation allowed the authors to calculate contrast of the lizards with their visual backgrounds. By incorporating local ambient light and *A. carolinensis* spectral sensitivity into additional calculations, they were able to estimate lizard-background contrast from the perspective of the lizards. Results revealed dewlap and dorsum spectra to differ significantly among most of the study populations, as well as between the lizards and background vegetation. Although increased resemblance of a color signal to the illuminating spectrum will increase the signal's broadcast effectiveness, dewlap colors in the study populations did not resemble the ambient light spectra in their habitats. The authors consider the potential effects of this species' peculiar spectral sensitivity on the evolution of its dewlap coloration and propose that this coloration may represent a selective compromise to the unusually broad range of light habitats in which *A. carolinensis* is found. The "gray throated" population of southwest Florida proved to be extraordinary, and special attention is devoted to discussing aspects of coloration and contrast in this enigmatic population.

VIPER ACTIVITY IN PORTUGAL

J. C. Brito [2003, *Amphibia-Reptilia* 24(4):497-508] investigated the annual and daily activity cycles of *Vipera latastei* in northern Portugal from 1999 to 2001, based on field observations, radio-tracking data and road killed snakes. Annual activity extended from early March to late October, although some snakes were active during winter. Two annual peaks of activity were observed, a minor one in March-May and a major one in September-October. The daily activity pattern of vipers in spring and autumn was unimodal, whereas in summer they expanded their activity from early morning to late afternoon, and were also active at night. Activity and body exposure of adult males were correlated with meteorological variables. Females had shedding periods in June and July; males shed their skin more frequently in June and August. Sperm was detected in the vas deferens of males in October to December. Females ovulated in June and newborn vipers were found from early August. Mating season is apparently restricted to autumn; spring mating is either absent or very reduced.

WESTERN WHIP SNAKE DIETS

E. Filippi et al. [2003, *Herpetozoa* 16(1/2):61-66] studied the taxonomic diet composition of *Coluber viridiflavus* Lacépède, 1789, collected from various habitat types (Mediterranean macchia, cultivated lands, pinewood, rocky coastline) of the small Island of Ustica, off the northern coast of Sicily (Italy). The study documents a partial shift in *C. viridiflavus* feeding habits in terms of prey type at least in one habitat type (cultivated lands), where the diet of the snakes consisted mainly of amphibians (green toads, *Bufo viridis*) and rodents. The authors suggest that *C. viridiflavus* from Ustica developed such unusual traits in response to low availability levels of usual prey (lizards and rodents) and high abundance of green toads in the cultivated lands of this Mediterranean island.

NORTHERNMOST ADDERS

S. Andersson [2003, *Amphibia-Reptilia* 24(4):449-457] studied European adders, *Vipera berus*, at five of the northernmost localities known, in the basins of Tornio, Lainio and Vittangi Rivers, between 300 and 450 m above sea level. The study area lies approximately 150 km north of the Arctic Circle in northern Sweden. Three different kinds of slopes were used as hibernation sites, slopes on moraine ridges, slopes in canyons and on mountains. All were characterized by stony south facing slopes without topsoil and shading trees. Open areas of peat bogs and marshlands were always found within a kilometer of the hibernation sites. Except pregnant females that remained around the hibernation sites, the adders were found feeding on voles in these areas from mid-June to mid-August showing a distinct shift in habitat use between seasons. The total length of the activity period was found to be 17–18 weeks.

UNUSUAL ADVERTISEMENT CALL

M. B. de Souza and C. F. B. Haddad [2003, *J. Herpetology* 37(3):490-497] redescribe *Leptodactylus dantasi* Bokermann from adult specimens collected in Parque Nacional da Serra do Divisor, State of Acre, Brazil, near the border between the Brazilian state of Acre and Peru. They propose the inclusion of this species in the genus *Hydrolaetare*. A new diagnostic character observed for the genus is the presence of fringes of fingers, and fringes and webbing of toes, finely serrate; the serrate edge of the fringe and webbing can be keratinized in males, females, and subadults. *Hydrolaetare dantasi* (Bokermann) is characterized by robust body and limbs, a broad and depressed head, slightly shorter than wide, and long, pointed and basally webbed toes. *Hydrolaetare dantasi* differs from the only other species in this genus, *Hydrolaetare schmidtii* (Cochran and Goin), mainly by having toes webbed basally (fully webbed in *H. schmidtii*). The advertisement call of *H. dantasi* is composed of two components; an initial note produced by the impact of the vocal sac against the ground and a second note corresponding to a long whistle of ascending frequency. The initial note is a percussive sound and represents an unusual form of sound emission in anurans; the second note is a vocalization.

WATER MONITOR BEHAVIOR

N. D. Rathnayake et al. [2003, *Hamadryad* 27(2):179-184] studied the thermal behavior and diurnal activity patterns of the water monitor, *Varanus salvator*, in Kandy, central Sri Lanka. The frequency of activity types observed varied during different times of the day. Early in the morning, more lizards were observed foraging in water, but by the late morning, activity in water decreased. Instead, more individuals were seen basking or resting out of water by late morning and during the afternoon. Fewer active lizards were seen during continuous rainy days. The mean body temperature of active lizards was 28.9°C, which is similar to that reported from other studies on the species, and is lower than that reported for other varanid lizards. Body temperature of lizards foraging in the water (mean 26.2°C ± SD 2.2) was also lower than the body temperature of animals that were resting or basking (mean 29.1°C ± SD 3.6).

INHERITANCE OF MELANISM IN GARTER SNAKES

R. B. King [2003, *Herpetologica* 59(4):484-489] reports that the results of 11 captive matings among nine female and six male descendents of six wild-caught female common garter snakes, *Thamnophis sirtalis*, from polymorphic populations near Lake Erie confirm that melanism is inherited as a simple Mendelian trait and is recessive to a striped pattern. The make-up of litters born to 71 wild-caught females from five sites corroborate this result: striped females never produced all melanistic litters and the frequency of entirely striped, mixed, and entirely melanistic litters conforms to expectations based on estimated allele frequencies. Possible explanations for a previously reported non-Mendelian inheritance of melanism include the occurrence of a somatic mutation or bias in sperm production and fertilization ability.

DIETS OF GABOON AND NOSE-HORNED VIPERS

L. Luiselli and G. C. Akani [2003, *African J. Herpetology* 52(2):101-106] recorded the stomach contents of 524 gaboon vipers, *Bitis gabonica gabonica* (53 subadults, 222 males and 249 females), and 392 nose-horned vipers, *Bitis nasicornis* (48 subadults, 163 males and 161 females), from a number of forest-plantation mosaic areas of southern Nigeria (West Africa). Adult sex ratio was close to 1:1 in both species. In both gaboon and nose-horned vipers, mean SVL of females significantly exceeded that of males. Of the total sample 30.7% of the gaboon vipers and 26% of the nose-horned vipers contained identifiable food in the stomach. The stomachs of gravid females of both species never contained food. The stomach contents of the gaboon vipers consisted mainly of small mammals, followed by birds, lizards and, occasionally frogs. Males and females had similar diets. The diet of subadults differed from that of adults in that there were significantly more newborn mice and more lizards consumed. Nose-horned vipers also fed mainly upon small mammals, but amphibians were also eaten. Males and females had similar diets, and the diet of subadults differed from that of adults and consisted largely of newborn mice.

CONTEXT DEPENDENT KIN DISCRIMINATION

M. E. Gibbons et al. [2003, *Herpetologica* 59(3):322-333] note that kin discrimination, or the differential treatment of kin, is evident in a wide variety of taxa. The benefits and costs of kin discrimination may vary according to social and ecological conditions, causing discrimination to be context specific. The authors tested for context-dependent kin discrimination in the red-backed salamander (*Plethodon cinereus*), a terrestrial species in which adults of both sexes defend feeding territories in which juveniles are often found. If individuals demonstrate the ability to discriminate kin from non-kin, this action would indicate that a mechanism for long-term parental care is present. Mother salamanders provide protection for juveniles by defending territories from cannibalistic intruders or by feeding on large invertebrates that are predators of juveniles. However, mother salamanders did not significantly discriminate their offspring from unrelated neonates when simple interactions between the two were monitored or when conspecific intruders were added to chambers. Neonates did not behave significantly differently toward mothers than they did toward unrelated females during simple interactions. They also failed to discriminate between substrates that had been scented by their mothers and those that had been scented by unrelated females. When given a choice between related and unrelated neonates, however, females cannibalized unrelated neonates significantly more than their own offspring. This study suggests that kin discrimination between mothers and offspring may occur only in particular contexts, but that mothers possess the mechanism by which they are able to discriminate their offspring from unrelated neonates.

DEFINING PECTORAL GIRDLE ARCHITECTURE

M. Kaplan [2004, *Herpetologica* 60(1):84-97] evaluates proposed definitions of the states of the pectoral girdle architecture in anurans — namely arcifery, firmisterny, arciferofirmisterny and “almost arcifery” — with respect to their consistency with the most recent morphological observations. All previous definitions of the states of pectoral girdle architecture are invalid and new ones are proposed; the associated terminology of these definitions is formally defined.

ECOLOGY OF ORNATE BOX TURTLES

S. J. Converse and J. A. Savidge [2003, *J. Herpetology* 37(4):665-670] examined the relationships between ambient temperature, activity level, and vegetation structure of microhabitats used by ornate box turtles; vegetation structure of these habitats should influence microclimatic conditions and, thus, the thermoregulatory value of microhabitats. Thirty-four ornate box turtles (*Terrapene o. ornata*) were radio-tracked during 1997 and 1998 in the Nebraska Sandhills. Activity level was negatively related to ambient temperature. Active turtles used areas with more bare ground in both years, and more forb cover in one year, whereas inactive turtles used areas with more shrub and litter cover. Providing habitat components that function as thermoregulatory cover may be important for land management plans in areas where this species is found.

PREY CHEMICALS AND TIME AT AMBUSH POSTS

W. E. Cooper, Jr., and M. J. Whiting [2003, *Herpetologica* 59(4):455-458] hypothesize that lizards that forage from ambush do not exhibit prey chemical discrimination, but might enhance foraging efficiency by staying longer at ambush posts bearing chemical prey cues. By presenting chemical stimuli to free-ranging lizards, the authors tested whether *Platysaurus broadleyi* had longer giving-up time (i.e., time at an ambush post) in the presence of insect prey stimuli. The lizards remained no longer at tiles labeled by prey chemicals than control substances, but giving-up times were greater at tiles labeled by a plant food (fig). Ambush foragers may not use prey chemicals to assess the quality of ambush posts.

GEOGRAPHIC VARIATION IN GARTER SNAKE DEFENSIVE TACTICS

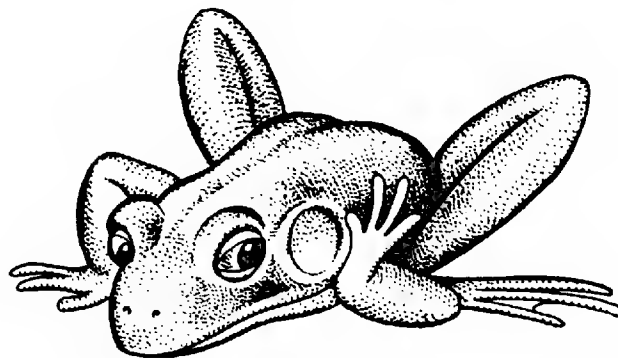
R. Shine et al. [2003, *Herpetologica* 59(3):333-339] note that, in Manitoba, garter snakes (*Thamnophis sirtalis parietalis*) court and mate at communal overwintering dens and then disperse to feeding ranges in summer. The restriction of mating activities to den areas may reduce gene flow between populations from adjacent dens, in turn allowing divergence in traits such as antipredator behavior. The authors quantified responses of adult male snakes to the approach of human observers at four dens, prior to dispersal in late spring. Larger snakes bit more frequently than did smaller individuals, at all four dens. Although some of the dens were <20 km apart (and hence, individuals from each would likely encounter each other during summer), strong geographic differences were found in antipredator tactics (approach distance and propensity to bite). These differences may reflect genetic isolation of den populations, due in turn to den-based mating and philopatry. However, to rule out alternative explanations such as learned responses to different predation exposure, studies are needed on naive snakes.

OVIPOSITION CUES IN BARKING TREEFROGS

J. K. Scarlata and C. G. Murphy [2003, *J. Herpetology* 37(3):580-582] report that the external stimuli that trigger ovulation and oviposition in anurans are poorly understood. The authors determined experimentally when during the mating process female barking treefrogs (*Hyla gratiosa*) become irrevocably committed to oviposition. They captured females at different points during the mating process, held them overnight without mates, and determined the following morning whether females had oviposited. Females arriving at the chorus and captured before entering amplexus did not oviposit, whereas 22% of females captured immediately after entering amplexus did. Ninety percent of females allowed to remain in amplexus for 1 h oviposited, and all females allowed to remain in amplexus for 1.5 h oviposited. Females that remained in amplexus for 1 h released significantly fewer eggs than did females that remained in amplexus for 1.5 h. These results indicate that amplexus, or a cue correlated with amplexus, triggers oviposition and that the number of eggs oviposited increases with time spent in amplexus.

The Tympanum

A small, black *Elaphe* wriggled into his hibernaculum deep in the root system of a blue beech in southwestern Michigan. Nestled in the comfort of a long winter's sleep he was not aware that a veritable committee of magicians was at work on his behalf in central Europe. For months this team of magicians brewed bits of old snake skin and artificially inflated old hemepenes together and then seasoned the mix with blebs of mitochondrial DNA. Finally they added a mumbo jumbo of discarded Latin and Greek nouns to the mess to discourage any other teams that might be interested in similar projects. The whole point



of this, of course, was to help the self-perception of the poor little snake who was not comfortable being an *Elaphe*, which means “deer-like.” After all, he had never eaten an acorn in his life! The magic worked! When he awoke in the spring the snake had been miraculously transformed into the mighty

Pantherophis (“panther snake”) and he set out to find a spot of sun thinking he was king of the forest. Ironically, later that day, *Pantherophis* was accidentally stepped on by a deer.

J. Alan Holman, Michigan State University Museum, East Lansing, MI 48824-1045.

Unofficial Minutes of the CHS Board Meeting, February 13, 2004

Lori King called the meeting to order at 7:35 P.M. Board member Ed Rzewnicki was absent.

Officers' Reports

Recording Secretary: Melanie Aspan read the minutes of the January 16 board meeting. Corrections were made and the minutes were accepted.

Treasurer: Jim Hoffman presented the balance sheet.

Membership Secretary: Mike Dloogatch presented the membership chart and noted that in January we lost members for the first time in five months, but that the total number has held steady for the past year.

Vice-President: It was announced that Ron Humbert would be the speaker at the February General Meeting. His topic will be “Turtles: Past, Present and Future.”

Corresponding Secretary: Steve Spitzer told the Board that he has cleaned out the CHS voicemail.

Publications Secretary: Betsy Davis announced that some of her goals are to improve the CHS website to better utilize it to attract new members and be a better source of herp-related information.

Sergeant-at-arms: Brian Jones reported 50 attendees at the January general meeting.

Committee Reports

ReptileFest: John Archer is planning a meeting for volunteers who wish to help engineer tops for the aquariums that will be used for the Herps of Illinois display. Jack Schoenfelder offered to send ReptileFest information to the Northwest Indiana newspapers as he has done in the past. John will provide fliers for the purpose.

Grants: Lori King announced that there is a meeting scheduled for February 14, 2004, to award the grants, and the committee

will announce the winners at the February general meeting.

Shows: Lori King extended a special thank you to Dan Bavirsha for his efforts relating to the publicity for the Notebaert Museum's new exhibit “When Crocodiles Ruled.” Jenny Vollman told us that the Notebaert would like the CHS to sign contracts to outline the goals and etiquette of our educational shows that are held on the premises. She also mentioned that the museum asked if we would be able to have members available to show animals on February 16 because it is Presidents' Day, and they are expecting school groups to visit. The Chicagoland Family Pet Show dates were mentioned as March 19–21. The shows at Garfield Park Conservatory on the 22nd and 25th of February were discussed as well as the “Reptile Rampage” in Lake Forest on March 14.

Raffle: After skipping a month due to technical difficulties, the raffle will resume at the February general meeting, but it was noted that we are running low on items.

Library: Betsy Davis asked if it would be possible to put a list of the books currently in the library on the website, and Steve Sullivan replied that a catalog of the books does not exist at this time. Mike Dloogatch made a motion that \$300 be allocated to purchasing new books for the library. It was discussed and decided that when choosing the new books the Librarian would make the final selection of appropriate books. The motion was seconded by Matt Campbell and passed unanimously. Linda Malawy said that she would be willing to videotape the presentations of the speakers at the general meetings for submission to the library.

Adoptions: Linda Malawy announced a combined adoptions donation of \$120 for the month.

Conservation: Matt Campbell addressed the issue of selling T-shirts for specific conservation efforts at the general meetings. Betsy Davis announced that \$193 was raised from the sale of merchandise for *Cyclura* conservation at the December general meeting. Bob Bavirsha mentioned that the State of

Illinois is proposing to eliminate the DNR's Conservation Police; that function would then go to the State Police. Steve Spitzer directed those interested in the issue to <http://www.chicagolandfishing.com> for further information on the matter.

Chicago Wilderness: Ron Humbert has recently received communication from Chicago Wilderness regarding help with their Frog Call Surveys. He has looked through the recent correspondence and has agreed to shepherd our membership temporarily. Matt Campbell expressed interest in becoming the new liaison.

Old Business

Salamander Safari: This year's Safari will be on March 27.

State Reptile/Amphibian: Ron Humbert announced that legislators Dan Cronin and Bob Biggins are currently arranging funding, and State Reptile elections are occurring in some schools already. Lori King asked if there was a plan to announce the final results of the elections, and if the CHS would be included in any such announcement.

Proposed Chicago Animal Ban Ordinance: Lori King assured us that although no date for a committee meeting has been set, the issue remains on the docket.

General Meeting Short Presentations: Ron Humbert is looking for someone to present the Illinois herp at the February meeting. Matt Campbell volunteered to do so. Ron will do the presentations in March and April, and Jack Schoenfelder will

present in May.

PARC: Lori King has been in communication with one of the state organizers of PARC, and asked if the Board had any questions after looking over the material she provided at last month's meeting. Matt Campbell brought up the concern that perhaps PARC is at the moment more of a networking opportunity than an organization that takes concrete action on major issues. The idea was raised of having a PARC representative come and make a presentation about their organization and efforts to the Board.

New Business

Zoo Trip: Bob Herman has presented the idea of taking an overnight trip to the St. Louis Zoo. There was concern that the trip would not appeal to the same number of people as last year's trip because of the increased cost, but it was decided that the idea should be presented at the February general meeting to gauge the interest level.

Round Table

Jim Hoffman announced that the Amazon.com link located on the CHS website would be changing soon, and so anyone making a purchase should go to the website and use the new link rather than using a bookmarked link.

The meeting adjourned at 10:10 P.M.

Respectfully submitted by Melanie Aspan, Recording Secretary.

PSST. . .
Wanna Save \$7.00?
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Just volunteer to help.
I still have jobs you can do.
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Find out how much fun you can have
in one day!

Call John Archer at 630-351-4251
or
E-mail j-archer@sbcglobal.net.

Setup April 2 after 8:30 p.m.
Show April 3, 4 from 10:00 a.m. to 5:00 p.m.

Advertisements

For sale: rats and mice—pinkies, fuzzies and adults. Quantity discounts. Please send a SASE for pricelist or call Bill Brant, *THE GOURMET RODENT*, 6115 SW 137th Avenue, Archer FL 32618, (352) 495-9024, E-mail: GrmtRodent@aol.com.

For sale: from **The Mouse Factory**, producing superior quality, frozen feeder mice and rats. We feed our colony a nutritionally balanced diet of rodent chow, formulated especially for us, and four types of natural whole grains and seeds. Mice starting from: pinks, \$.17 each; fuzzies, \$.24 each; hoppers, \$.30 each; weanling, \$.42; adult, \$.48. Rats: starting with pinks at \$.45 each, to XL at \$1.80 each. Discount prices available. We accept Visa, MC, Discover or money orders. PO Box 85, Alpine TX 79831. Call **toll-free** at (800) 720-0076 or visit our website: < <http://www.themousefactory.com>> .

For sale: **high quality frozen feeders**. Over a decade of production and supply. Seven sizes of mice available: small newborn pinks up to jumbo adults. Prices start at \$25 per 100. Feeders are separate in the resealable bag, not frozen together. Low shipping rates. Free price list. Kelly Haller, 4236 SE 25th Street, Topeka KS 66605, (913) 234-3358 evenings and weekends.

For sale: books. *International Zoo Yearbooks*, DJ, hardbound, special sections noted: Vol. 10 (1970)—birds of prey; Vol. 11 (1971)—marsupials; Vol. 14 (1974)—trade and transport of animals; \$60 per volume; *El Mundo del Zoo* by Marcos Freiberg, 1974, 91 pp., 64 b&w photos, inscribed by author, in Spanish, softbound, \$20; *Living Reptiles of the World* by Schmidt and Inger, 1961 (1957), 287 pp., many color and b&w photos, tattered DJ, hardbound, \$25; *A Field Guide to the Reptiles of the Australian High Country* by R. Jenkins and R. Bartell, 1980, 278 pp., many color photos, DJ, hardbound, \$20; *The Ecology of a Population of Xantusia vigilis, the Desert Night Lizard* by Zweifel and Lowe, 1966, 57 pp., 19 figs., softbound, \$7. All books are in excellent condition except as noted. Send E-mail address for complete list. Prices for orders \$25 or more include postage; \$2.50 postage and handling for under \$25. William R. Turner, 7395 S. Downing Circle West, Littleton, CO 80122, (303) 795-5128. E-mail: toursbyturner@aol.com.

For sale: Now taking reservations for 2004 unusual garter snake expected offspring. The babies are expected to be born this June. **Easterns**: Florida, \$25 each/2 for \$40; albinos (limited numbers), 4 strains, \$195–250 each; flames & speckled flames, market value; melanistic, \$35 each; silver hets, \$75 each; granite, \$150 each (limited numbers); granite hets, \$75 each; erythrastics, \$100 each. **Plains**: normal, \$25 each/2 for \$40; snows, Iowa and Nebraska, market value; albinos, Iowa and Nebraska, market value; anerythristic, market value; axanthic (co-dominant trait), \$95 each; quad hets, \$75 each; red × albino—albinos, \$125 each, hets, \$40 each; Christmas albino, market value; super Christmas albino, \$175 each; red albino plains, market value; hybinos, \$195 each; hypos, \$95 each. **Santa Cruz**, \$60 each; **Wanderings**: normals, \$25 each/2 for \$40; albinos (limited numbers), \$150 each; het albino, \$50 each; possible het albino, \$35 each; melanistics, \$95 each; het melanistics, \$35 each; **California red-sided**, \$125 each, **Florida true blue-striped (similis)**, \$40 each; **Red-sided**: normal, \$25 each/2 for \$40; albinos, \$375 each (limited numbers); possible het albinos, \$60 each; anerythristic, \$100 each; hets, \$50 each; possible hets, \$35 each; het colorless, \$35 each. Contact Scott via email SFelzersgarters@nc.rr.com or call (919) 365-6120 EST. Web address is < <http://www.gartersnakemorphs.com>> .

Herp Tours: Why pay more? Travel with the International Fauna Society, a 501 (c)3 not-for-profit organization, and experience the Costa Rican rainforest! Stay at the beautiful Esquinas Rainforest Lodge in the untouched herpetological paradise that is Piedras Blancas National Park. Meet new friends, relax in the naturally-filtered swimming pool or in the lush, fauna-filled tropical garden. Discounts for IFS and Chicago Herp Society members. For details, visit The International Fauna Society website at www.faunasociety.org or E-mail: joea@faunasociety.org.

Herp tours: Adventure trips to **Madagascar**! Journey somewhere truly unique to seek and photograph nature on the world's least-studied mini-continent. For maximum herp fun and discovery, join Bill Love as we go where few people will ever venture in their lives. Let his experience assure a comfortable tour finding the most colorful and bizarre species on the planet! Get all the details at Blue Chameleon Ventures' comprehensive new website: < <http://www.bluechameleon.org>> , E-mail: bill@bluechameleon.org, or call (239) 728-2390.

Herp tours: Experience the Amazon! Road-ride in Costa Rica! See and photograph herps where they live, have fun doing it, make good friends and contacts, and best of all . . . **relax!** From wildlife tours to adventure travel, **GreenTracks, Inc.** offers the best trips led by internationally acclaimed herpers and naturalists. See our website < <http://www.greentracks.com>> or call (800) 9-MONKEY. E-mail: greentracks@frontier.net.

Internship: The Kentucky Reptile Zoo, a nonprofit organization, seeks student interns for the 2004 spring, summer and fall seasons. The zoo is an educational exhibit, reptile breeding and venom research facility located near Kentucky's Red River Gorge and Natural Bridge State Park. The intern will assist in the captive maintenance of the zoo's reptile collection, collect admissions to the exhibit, give interpretive talks and interact with the public, assist with educational outreach programs, and perform other duties as assigned. In addition, the intern will be responsible for the completion of at least one research project related to the field of herpetology. The intern will not be involved in the handling of any venomous reptiles. Desirable qualifications include a willingness to handle snakes and other reptiles on a daily basis, ability to communicate effectively with people, writing skills, orientation to details, and self-motivation. The intern will be required to work both Saturday and Sunday, with days off during the week. Interns are required to be either current college students or recent graduates; students majoring in the biological or natural sciences are preferred. Former interns have arranged for academic credit with their colleges or universities. Interns have also been successful in finding zookeeper positions, with a hire rate of over 95%! Benefits include experience with the most extensive and diverse collection of snakes in the U.S., housing and \$55/week to cover expenses. Personal transportation is recommended. A valid driver's license is required. Starting dates are flexible, but a minimum commitment of 3 months covering spring (March–May), summer (June–August), or fall (September–November) is required. To apply send a cover letter, resume, transcript, and at least 2 (preferably 3) references to: Kristen Wiley, Internship Coordinator, Kentucky Reptile Zoo, 200 L&E Railroad, Slade KY 40376. Or E-mail: kyreptil@mailhost.mis.net.

Pet Sitting: In-home care for all your pets' needs. Specializing in reptiles, amphibians, birds, fish, dogs, cats. . . . Very passionate in herpetology, experienced vet technician at an exotic animal hospital, aquarium technician for over 10 years. Great references available. Call Lisa Collins to book your special care requests, (847) 644-3681. [Northshore based]

Wanted: I'm looking for my soulmate. I want to settle down to a family before it is too late. But I have this problem. . . . When we get into hobbies and interests: old popular records, jazz and show tunes, and antique electronics are fine, but when I mention turtles, "What, are you crazy?" So maybe this is a better place to look. Please don't try to separate me from my turtles—at least not most of them. If interested, please drop a line to Ellis Jones, 1000 Dell, Northbrook IL 60062, telling a bit about yourself and giving a phone number.

Wanted: big-headed turtles; mata mata turtles; Mexican giant mud turtles (*Staurotypus triporcatus*); exceptionally large common snappers (45 lbs. & up); large alligator snappers (over 90 lbs.); spectacled caiman from Trinidad, Tobago and Surinam; dwarf caiman; smooth-fronted caiman; albino turtles (except red-eared sliders). Walt Loose, (610) 926-6028, 9:00 A.M. – 1:00 P.M. or after 11:30 P.M. Eastern Time.

Wanted: **Cape cobra information**. I am seeking data for captive breedings of *Naja nivea*. My primary purpose is to establish the number of eggs laid (any double clutches?) and most important the color of the neonates immediately after emergence. Contact: Karl Switak at khs@sonic.net.

Line ads in this publication are run free for CHS members — \$2 per line for nonmembers. Any ad may be refused at the discretion of the Editor. Submit ads to: Michael Dloogatch, 6048 N. Lawndale Avenue, Chicago IL 60659, (773) 588-0728 evening telephone, (312) 782-2868 fax, E-mail: MADadder0@aol.com.

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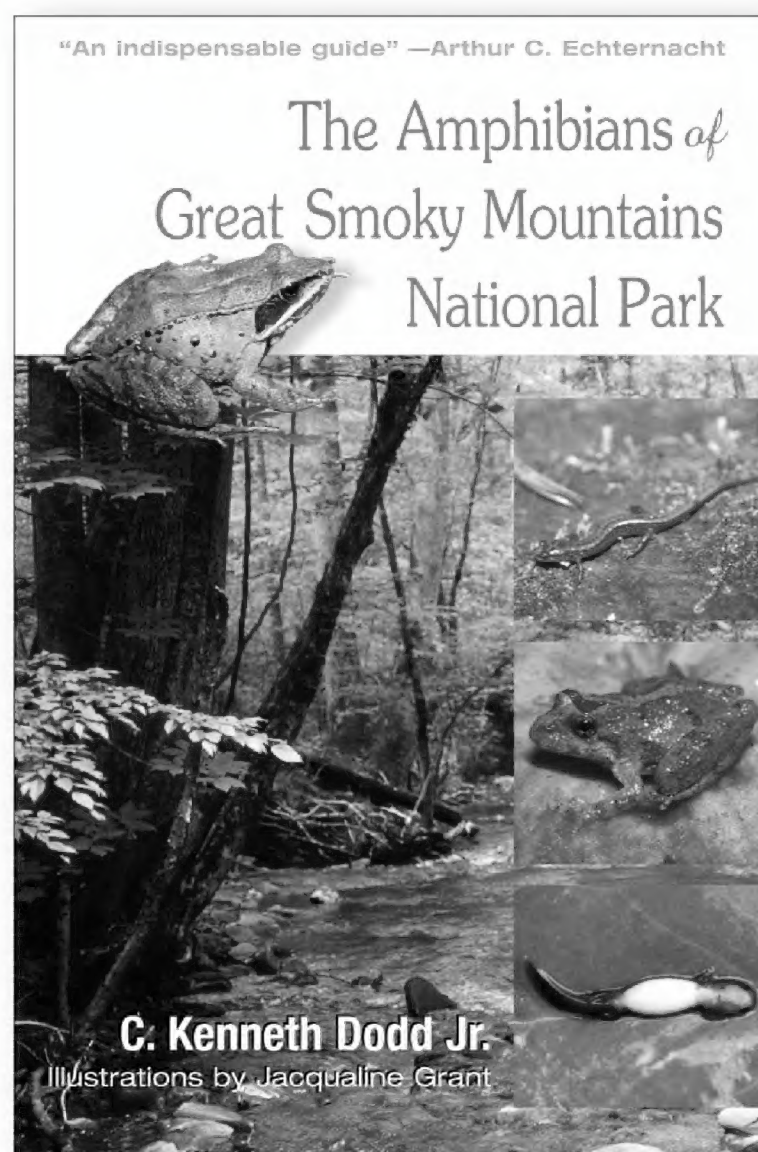
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UPCOMING MEETINGS

The next meeting of the Chicago Herpetological Society will be held at 7:30 P.M., Wednesday, March 31, at the Peggy Notebaert Nature Museum, Cannon Drive and Fullerton Parkway, in Chicago. **Danté Fenolio**, a graduate student at the University of Oklahoma, will speak on “The Herpetofauna Exploiting Termite Mounds of the Upper Tocantins River Valley, Brazil.” Danté is known to many of you as the author of numerous articles in *Reptiles* magazine.

The April 28 meeting will feature a slide program by renowned nature photographer **Karl Switak** on the wonders of South Africa's Kalahari Desert. This program will include scenes from Karl's latest trip to the Kalahari, last October, on which he was accompanied by Lori King and Mike Dloogatch.

The regular monthly meetings of the Chicago Herpetological Society take place at Chicago's newest museum — the **Peggy Notebaert Nature Museum**. This beautiful new building is at Fullerton Parkway and Cannon Drive, directly across Fullerton from the Lincoln Park Zoo. Meetings are held the last Wednesday of each month, from 7:30 P.M. through 9:30 P.M. Parking is free on Cannon Drive. A plethora of CTA buses stop nearby.

Board of Directors Meeting

Are you interested in how the decisions are made that determine how the Chicago Herpetological Society runs? And would you like to have input into those decisions? If so, mark your calendar for the April 16 board meeting, to be held at the North Park Village Administration Building, 5801 North Pulaski Road, Chicago. To get there take the Edens Expressway, I-94, and exit at Peterson eastbound. Go a mile east to Pulaski, turn right and go south to the first traffic light. Turn left at the light into the North Park Village complex. At the entrance is a stop sign and a guardhouse. When you come to a second stop sign, the administration building is the large building ahead and to your left. There is a free parking lot behind the building.

The Chicago Turtle Club

The monthly meetings of the Chicago Turtle Club are informal; questions, children and animals are welcome. Meetings normally take place at the North Park Village Nature Center, 5801 N. Pulaski, in Chicago. Parking is free. For more info call Lisa Koester, (773) 508-0034, or visit the CTC website: <http://www.geocities.com/~chicagoturtle>.

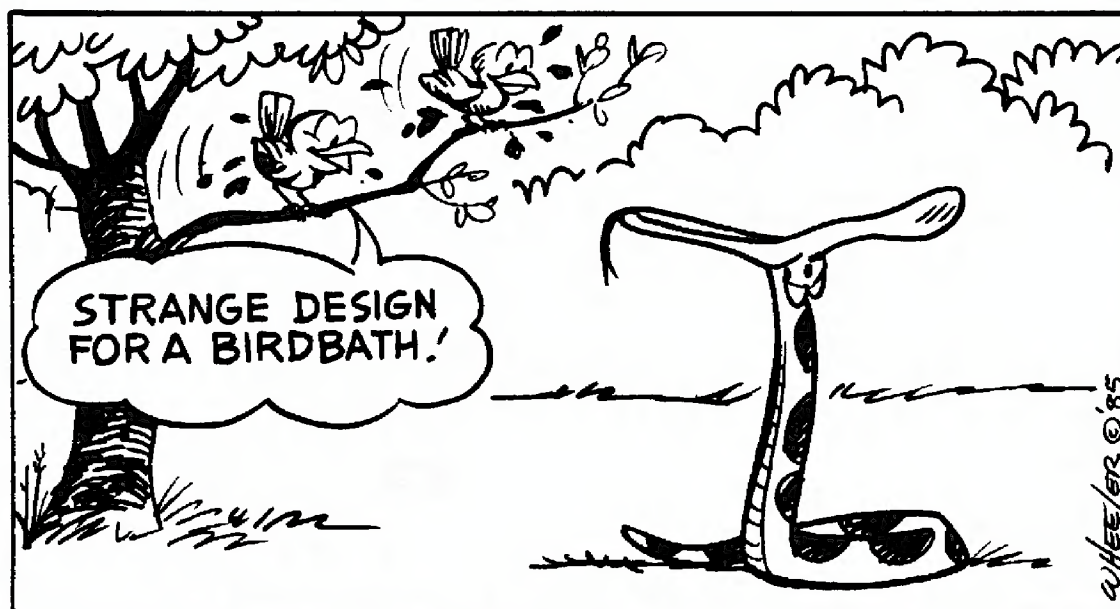
2004 SALAMANDER SAFARI

This year, the annual CHS Salamander Safari will be held on Saturday, March 27, 10 A.M. – 3 P.M., beginning at the Plum Creek Nature Center at Goodenow Grove Forest Preserve in Will County. Goodenow Grove is south of Crete, Illinois, 1½ miles east of the intersection of Route 1 and Route 394 on Goodenow Road. If you need directions to get to this area, call Ron Humbert at (630) 620-7377. From the nature center we will drive to other Forest Preserve District of Will County sites to search for amphibians. Species found or heard calling in previous inventories include spotted salamanders, blue-spotted salamanders, gray treefrogs, spring peepers, chorus frogs, bullfrogs, green frogs, and northern leopard frogs. Species not yet found but possibly occurring (or occurring at preserves nearby) include newts and wood frogs. As in past safaris, CHS members are encouraged to bring interesting amphibians from their personal collections for photography and display purposes. Coffee, juice and donuts will be provided, and a good time will be had by all!

HERP OF THE MONTH

Each monthly meeting will showcase a different herp. CHS members are urged to bring one specimen of the “Herp of the Month” to be judged against the entries from other CHS members. Prizes will be awarded to the top three winners as follows: 1st place—6 raffle tickets at next meeting; 2nd place—4 raffle tickets at next meeting; 3rd place—2 raffle tickets at next meeting. Here are the categories for the coming months: March—Amphibians of the world; April—Beginner herps; May—Herps from Madagascar.

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